



## Climate change: Effects on animal disease systems and implications for surveillance and control

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### Abstract:

Climate driven and other changes in landscape structure and texture, plus more general factors, may create favourable ecological niches for emerging diseases. Abiotic factors impact on vectors, reservoirs and pathogen bionomics and their ability to establish in new ecosystems. Changes in climatic patterns and in seasonal conditions may affect disease behaviour in terms of spread pattern, diffusion range, amplification and persistence in novel habitats. Pathogen invasion may result in the emergence of novel disease complexes, presenting major challenges for the sustainability of future animal agriculture at the global level. In this paper, some of the ecological mechanisms underlying the impact of climatic change on disease transmission and disease spread are further described. Potential effects of different climatic variables on pathogens and host population dynamics and distribution are complex to assess, and different approaches are used to describe the underlying epidemiological processes and the availability of ecological niches for pathogens and vectors. The invasion process can disrupt the long-term co-evolution of species. Pathogens adhering to an r-type strategy (e.g. RNA viruses) may be more inclined to encroach on a novel niche resulting from climate change. However, even when linkage between disease dynamics and climate change are relatively strong, there are other factors changing disease behaviour, and these should be accounted for as well. Overall vulnerability of a given ecosystem is a key variable in this regard. The impact of climate-driven changes varies in different parts of the world and in the different agro-climatic zones. Perhaps priority should go to those geographical areas where the integrity of the ecosystem is most severely affected and the adaptability, in terms of robustness and sustainability of response, relatively low.

**Source:** [http://web.oie.int/boutique/index.php?page=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)ficprod&id\\_prec=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)115&id\\_produit=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)690&lang=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)en&fichrech=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)1&PHPSESSID=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)6bb334f9e08994fe55ba3a6cd34c935b](http://web.oie.int/boutique/index.php?page=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)ficprod&id_prec=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)115&id_produit=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)690&lang=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)en&fichrech=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)1&PHPSESSID=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)6bb334f9e08994fe55ba3a6cd34c935b)

### Resource Description

**Early Warning System:**

# Climate Change and Human Health Literature Portal

■

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

## **Exposure :** ■

weather or climate related pathway by which climate change affects health

Ecosystem Changes

## **Geographic Feature:** ■

resource focuses on specific type of geography

None or Unspecified

## **Geographic Location:** ■

resource focuses on specific location

Global or Unspecified

## **Health Impact:** ■

specification of health effect or disease related to climate change exposure

Infectious Disease

### **Infectious Disease:** Vectorborne Disease

#### **Vectorborne Disease:** General Vectorborne

## **Mitigation/Adaptation:** ■

mitigation or adaptation strategy is a focus of resource

Adaptation

## **Resource Type:** ■

format or standard characteristic of resource

Review

## **Timescale:** ■

time period studied

Time Scale Unspecified